



# TEST REPORT FROM RFI GLOBAL SERVICES LTD

Partial Test of: Bluegiga WT21-N

To: FCC Part 15.247: 2008 Subpart C, RSS-210 Issue 7 June 2007  
& RSS-Gen Issue 2 June 2007

**Test Report Serial No:**  
RFI/RPT1/RP74713JD08B

<b>This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:</b>	
<b>Checked By:</b>	Nigel Davison
<b>Signature:</b>	
<b>Date of Issue:</b>	20 November 2009

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**1. Customer Information**






<b>Company Name:</b>	Bluegiga Technologies OY
<b>Address:</b>	Sinikalliontie 5A FIN - 02631 Espoo Finland

## 2. Summary of Testing



### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.247
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Section 15.247
<b>Specification Reference:</b>	RSS-210 Issue 7 June 2007
<b>Specification Title:</b>	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment.
<b>Specification Reference:</b>	RSS-GEN Issue 2 June 2007
<b>Specification Title:</b>	General Requirements and Information for the Certification of Radio communication Equipment
<b>Site Registration:</b>	FCC: 209735; Industry Canada: 3245B-2
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
<b>Test Dates:</b>	28 October to 20 November 2009

### 2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Port Type	Result
Part 15.247(b)(3)	RSS-Gen 4.8 RSS-210 A8.4(2)	Transmitter Maximum Peak Output Power	Antenna Terminals	
Part 15.247(d)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Conducted Emissions	Antenna Terminals	
Part 15.247(d)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Band Edge Conducted Emissions	Antenna Terminals	
Part 15.247(d) & 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Radiated Emissions	Antenna	
Part 15.247(d) & 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Band Edge Radiated Emissions	Antenna	

**Key to Results**

 = Complied     = Did not comply

### 2.3. Methods and Procedures

<b>Reference:</b>	ANSI C63.4 (2003)
<b>Title:</b>	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
<b>Reference:</b>	DA00-705 (2000)
<b>Title:</b>	Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

## **2.4. Deviations from the Test Specification**

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

### **3. Equipment Under Test (EUT)**

#### **3.1. Identification of Equipment Under Test (EUT)**

Brand Name:	Bluegiga
Model Name or Number:	WT21-N
Serial Number:	093710
Hardware Version Number:	23c
Software Version Number:	2.2
Industry Canada Certification Number:	5123A-BGTWT21N
FCC ID Number:	QQQWT21N

#### **3.2. Description of EUT**

The equipment under test is a WT21 *Bluetooth* HCI module intended for *Bluetooth* applications where a host processor is capable of running the *Bluetooth* software stack. WT21 only implements the low level *Bluetooth* Host Controller Interface (HCI).

#### **3.3. Modifications Incorporated in the EUT**

No modifications were applied to the EUT during testing.

**3.4. Additional Information Related to Testing**

<b>Tested Technology:</b>	<i>Bluetooth</i>		
<b>Power Supply Requirement:</b>	Nominal	3.3 V	
	Minimum	2.7 V	
	Maximum	4.9 V	
<b>Type of Unit:</b>	Transceiver		
<b>Channel Spacing:</b>	1 MHz		
<b>Mode:</b>	Basic Rate	Enhanced Data Rate	
<b>Modulation:</b>	GFSK	$\pi/4$ -DQPSK	8DQPSK
<b>Packet Type: (Maximum Payload)</b>	DH5	2DH5	3DH5
<b>Data Rate (Mbit/s):</b>	1	2	3
<b>Maximum Transmit EIRP:</b>	9.0 dBm		
<b>Transmit Frequency Range:</b>	2402 MHz to 2480 MHz		
<b>Transmit Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480
<b>Receive Frequency Range:</b>	2402 MHz to 2480 MHz		
<b>Receive Channels Tested:</b>	<b>Channel ID</b>	<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480



### **3.5. Support Equipment**

The following support equipment was used to exercise the EUT during testing:

<b>Description:</b>	Laptop
<b>Brand Name:</b>	Dell
<b>Model Name or Number:</b>	D620

<b>Description:</b>	Bluetooth tester
<b>Brand Name:</b>	Rohde & Schwarz
<b>Model Name or Number:</b>	CBT
<b>Serial Number:</b>	100329

<b>Description:</b>	WT21 Evaluation Board
<b>Brand Name:</b>	Bluegiga

## **4. Operation and Monitoring of the EUT during Testing**

### **4.1. Operating Modes**

The EUT was tested in the following operating mode(s):

- Transmit Mode with Basic Rate (DH5 packets) or EDR (2DH5 or 3DH5 packets) as required.

### **4.2. Configuration and Peripherals**

The EUT was tested in the following configuration(s):

- For transmit test: On a test jig, connected via a conducted radio link to a Bluetooth Tester to provide a test mode and normal mode of operation for the sample.
- For conducted and radiated emissions testing both EDR/Basic rate modes were compared and tests were performed with the mode that presented the worst case result i.e. DH5. For output power and conducted and radiated band edge emissions all modes were tested.

## **5. Measurements, Examinations and Derived Results**

### **5.1. General Comments**

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

**5.1.1. Transmitter Maximum Peak Output Power (ERP)****Test Summary:**

<b>FCC Part:</b>	15.247(b)(3)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000), ANSI TIA-603-C-2004 and FCC CFR Part 2

**Environmental Conditions:**

<b>Temperature (°C):</b>	22
<b>Relative Humidity (%):</b>	56

**Results: DH5**

Channel	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	7.0	2.0	9.0	30.0	21.0	Complied
Middle	7.0	2.0	9.0	30.0	21.0	Complied
Top	6.9	2.0	8.9	30.0	21.1	Complied

**Results: 2DH5**

Channel	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5.8	2.0	7.8	21.0	13.2	Complied
Middle	5.6	2.0	7.6	21.0	13.4	Complied
Top	5.5	2.0	7.5	21.0	13.5	Complied

**Results: 3DH5**

Channel	Conducted RF O/P Power (dBm)	Stated Antenna Gain (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	6.0	2.0	8.0	21.0	13.0	Complied
Middle	5.8	2.0	7.8	21.0	13.2	Complied
Top	5.7	2.0	7.7	21.0	13.3	Complied

**Note(s):**

- As per the requirements of Public Notice DA 00-705, the stated antenna gain of the EUT is 2 dBi which, when added to the highest (worst case) measured conducted peak output power of 7.0 dBm (from the table above) gives a de facto EIRP of 9.0 dBm. This is in compliance with the requirements of Section 15.247(b)(1) for the de facto EIRP limitation, i.e. 1 Watt (30 dBm).

**5.1.2. Transmitter Conducted Emissions****Test Summary:**

<b>FCC Part:</b>	15.247(d)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000) and FCC CFR Part 2

**Environmental Conditions:**

<b>Temperature (°C):</b>	21
<b>Relative Humidity (%):</b>	52

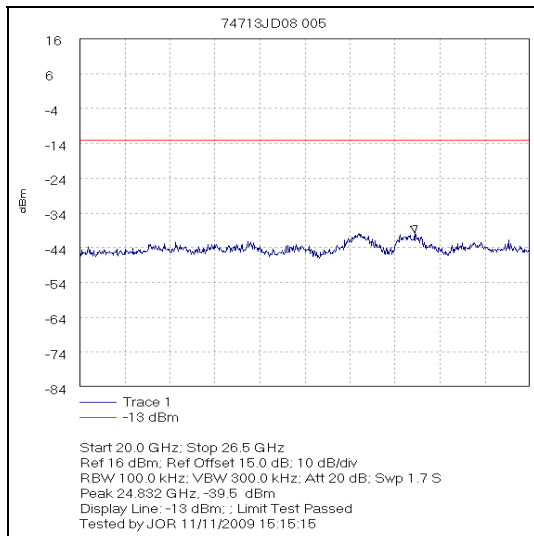
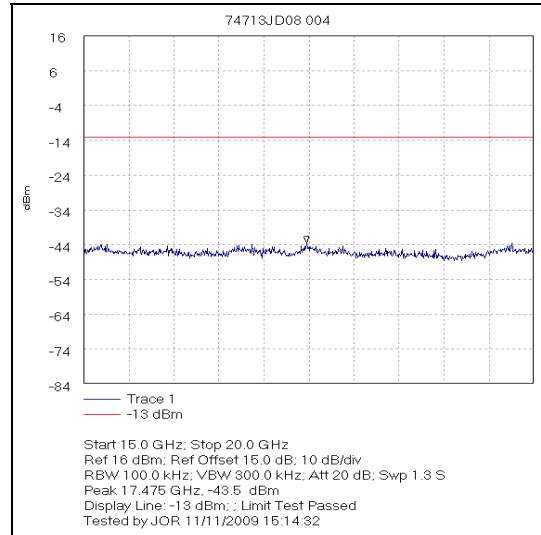
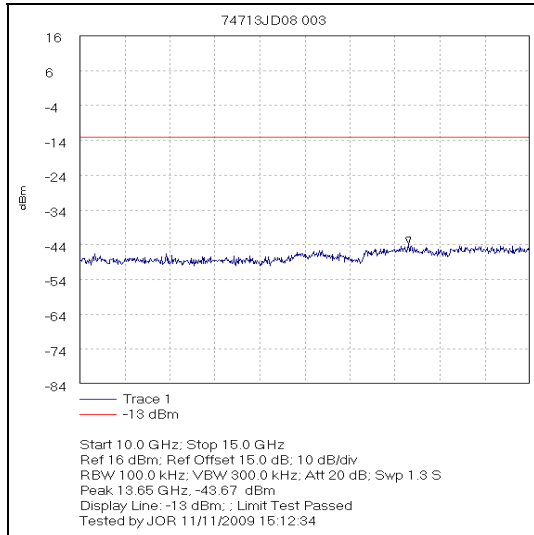
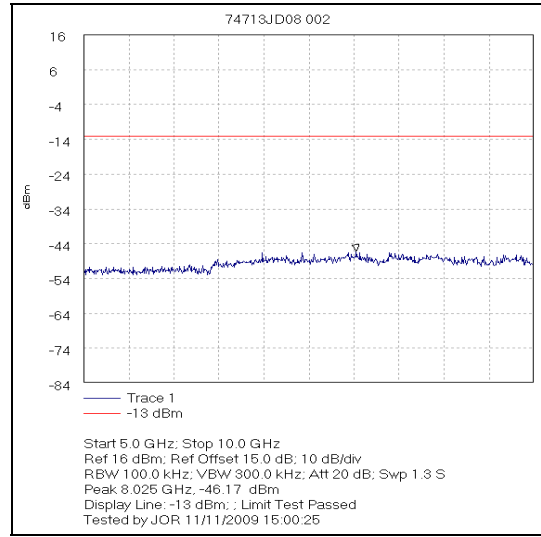
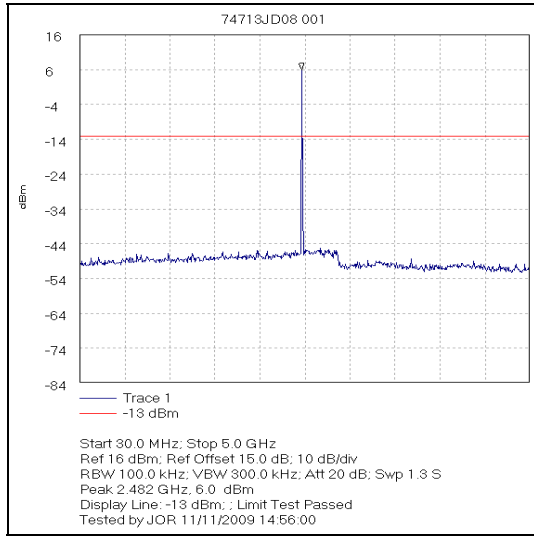
**Results: DH5 Top Channel**

<b>Frequency (MHz)</b>	<b>Peak Emission Level (dBm)</b>	<b>Peak Emission Level (dBc)</b>	<b>Limit (dBc)</b>	<b>Margin (dB)</b>	<b>Result</b>
8.025	-46.2	-53.2	-20.0	33.2	Complied
13.650	-43.7	-50.7	-20.0	30.7	Complied
24.832	-39.5	-46.5	-20.0	26.5	Complied

**Note(s):**

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor readings of the measuring receiver was recorded as shown in the table above.

**Transmitter Conducted Emissions (continued)**



**5.1.3. Transmitter Band Edge Conducted Emissions**

**Test Summary:**

<b>FCC Part:</b>	15.247(d)
<b>Test Method Used:</b>	As detailed in Public Notice DA 00-705 (March 30, 2000) and FCC CFR Part 2

**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	31

**Results: Peak Power Level Hopping Mode DH5:**

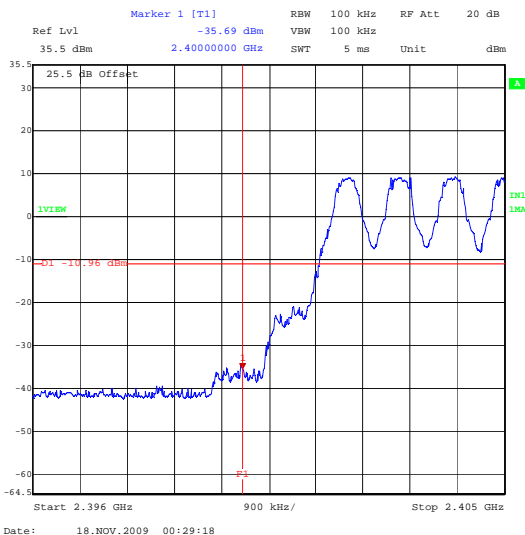
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-35.7	-44.7	-20.0	24.7	Complied
2483.5	-41.6	-50.2	-20.0	30.2	Complied

**Results: Peak Power Level Hopping Mode 2DH5:**

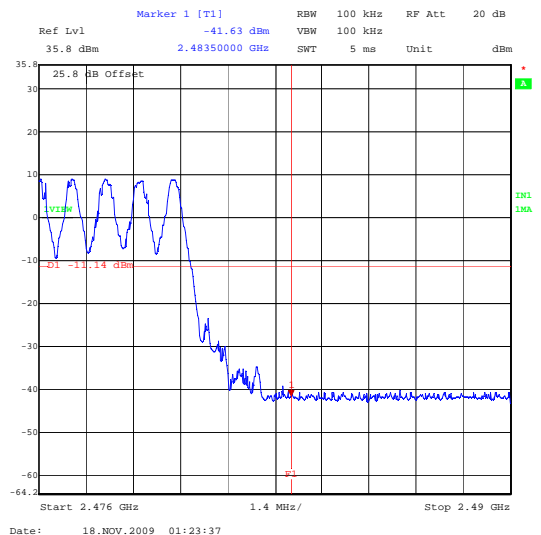
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-37.8	-45.6	-20.0	25.6	Complied
2483.5	-40.9	-48.3	-20.0	28.3	Complied

**Results: Peak Power Level Hopping Mode 3DH5:**

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-37.2	-45.2	-20.0	25.2	Complied
2483.5	-41.0	-48.7	-20.0	28.7	Complied

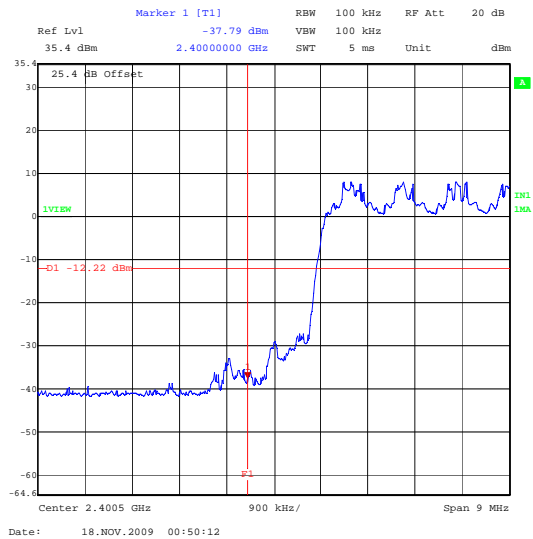


**DH5**

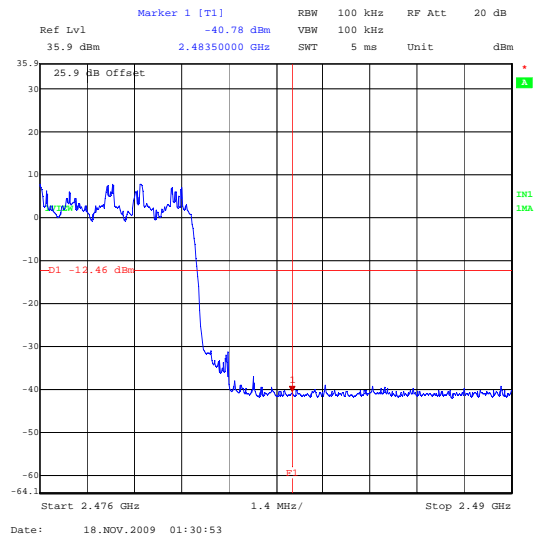


**DH5**

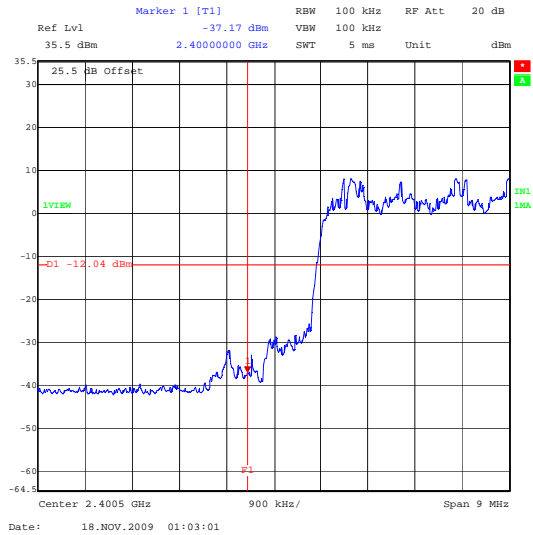
### Transmitter Band Edge Conducted Emissions (continued)



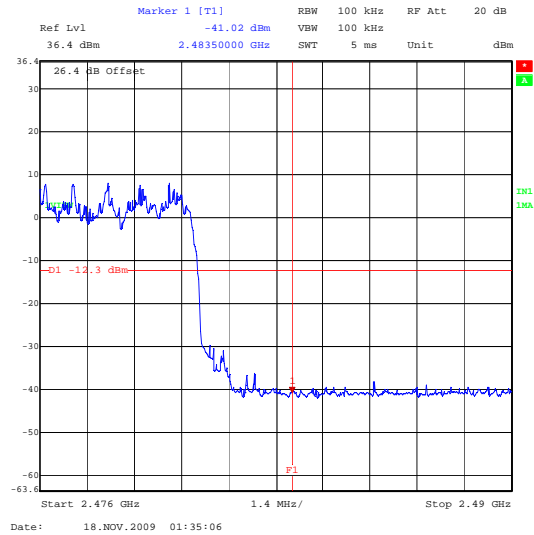
2DH5



2DH5



3DH5



3DH5



**Transmitter Band Edge Conducted Emissions (continued)**

**Results: Peak Power Level Static Mode DH5**

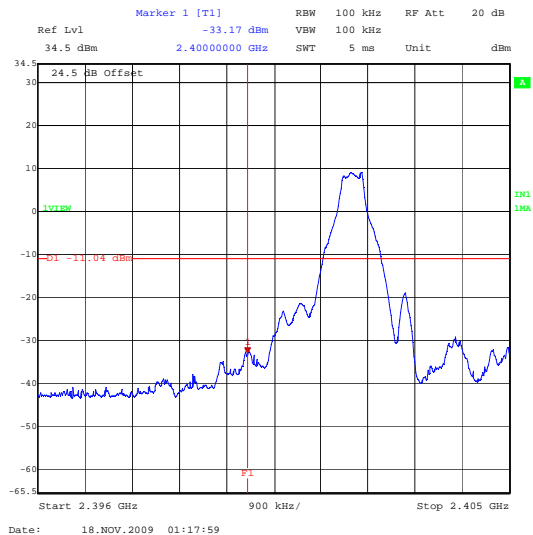
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-33.2	-42.1	-20.0	22.1	Complied
2483.5	-43.2	-52.1	-20.0	32.1	Complied

**Results: Peak Power Level Static Mode 2DH5**

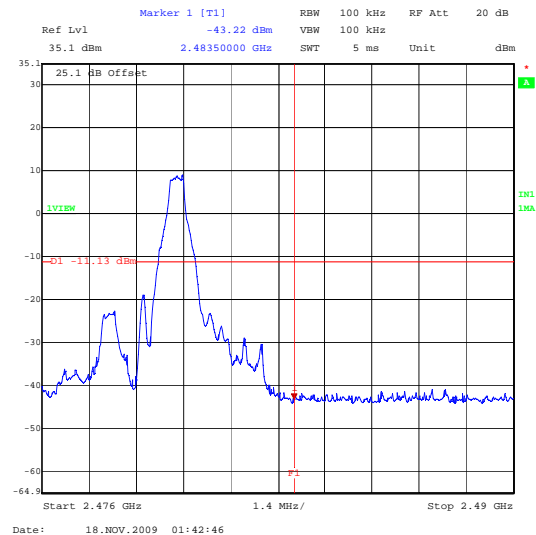
Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-36.9	-44.7	-20.0	24.7	Complied
2483.5	-41.8	-49.3	-20.0	29.3	Complied

**Results: Peak Power Level Static Mode 3DH5**

Frequency (MHz)	Peak Emission Level (dBm)	Peak Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
2400.0	-36.7	-44.6	-20.0	24.6	Complied
2483.5	-41.5	-49.2	-20.0	29.2	Complied

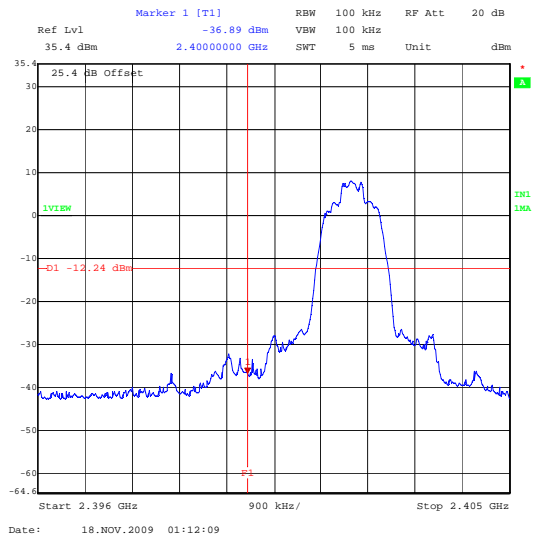


DH5

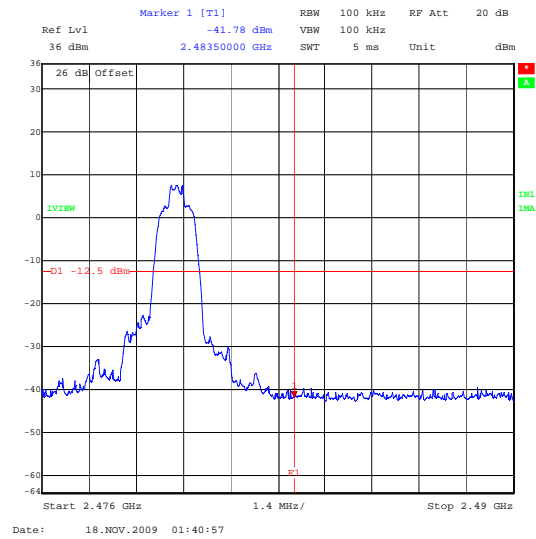


DH5

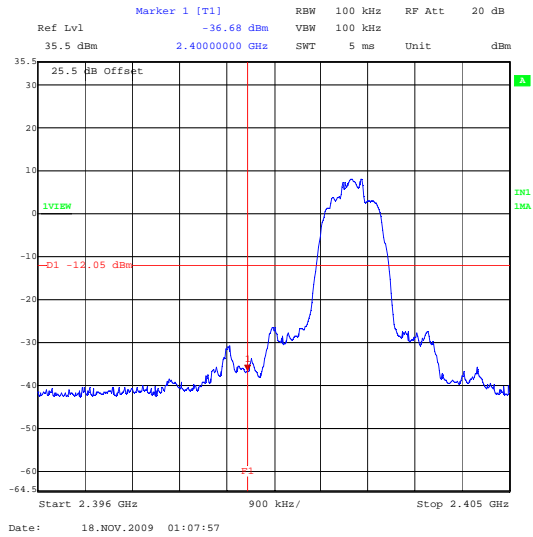
### Transmitter Band Edge Conducted Emissions (continued)



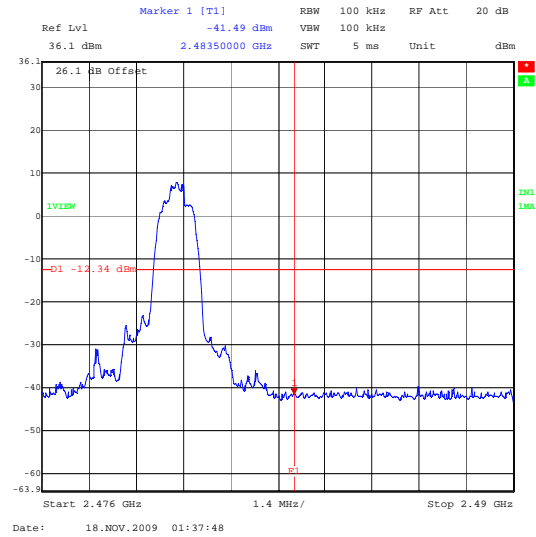
2DH5



2DH5



3DH5



3DH5

**5.1.4. Transmitter Radiated Emissions**

**Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)
<b>Frequency Range</b>	30 MHz to 1000 MHz

**Environmental Conditions:**

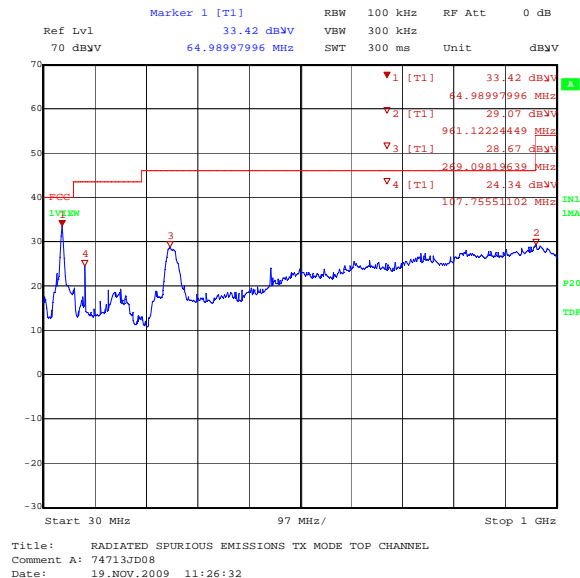
<b>Temperature (°C):</b>	23
<b>Relative Humidity (%):</b>	35

**Results: DH5 Top Channel**

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
65.495	Vertical	28.8	40.0	11.2	Complied
107.756	Vertical	16.9	43.5	26.6	Complied
276.066	Vertical	24.8	46.0	21.2	Complied
962.099	Vertical	33.0	54.0	21.0	Complied

**Note(s):**

- The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.



*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.*

**5.1.5. Transmitter Radiated Emissions****Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)
<b>Frequency Range</b>	1 GHz to 26.5 GHz

**Environmental Conditions:**

<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	32

**Results: Highest Peak Level DH5 Bottom Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.654	Vertical	41.4	-3.1	38.3	74.0	35.7	Complied
4.805	Vertical	50.0	-1.8	48.2	74.0	25.8	Complied
5.320	Vertical	45.8	3.0	48.8	74.0	25.2	Complied

**Results: Highest Average Level DH5 Bottom Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.654	Vertical	33.9	-3.1	30.8	54.0	23.2	Complied
4.804	Vertical	46.8	-1.8	45.0	54.0	9.0	Complied
5.341	Vertical	37.0	3.0	40.0	54.0	14.0	Complied

**Results: Highest Peak Level DH5 Middle Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.654	Vertical	40.8	-3.1	37.7	74.0	36.3	Complied
4.882	Vertical	50.5	-1.2	49.3	74.0	24.7	Complied
5.323	Vertical	45.2	3.0	48.2	74.0	25.8	Complied

**Results: Highest Average Level DH5 Middle Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.654	Vertical	33.9	-3.1	30.8	54.0	23.2	Complied
4.882	Vertical	45.7	-1.2	44.5	54.0	9.5	Complied
5.338	Vertical	36.0	3.0	39.0	54.0	15.0	Complied

**Transmitter Radiated Emissions (continued)****Results: Highest Peak Level DH5 Top Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.653	Vertical	44.4	-3.1	41.3	74.0	32.7	Complied
4.960	Vertical	52.6	-1.6	51.0	74.0	23.0	Complied
5.325	Vertical	44.9	3.0	47.9	74.0	26.1	Complied

**Results: Highest Average Level DH5 Top Channel**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.653	Vertical	34.7	-3.1	31.6	54.0	22.4	Complied
4.960	Horizontal	47.5	-1.6	45.9	54.0	8.1	Complied
5.343	Vertical	35.5	3.0	38.5	54.0	15.5	Complied

**Results: Highest Peak Level DH5 Hopping Mode**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.672	Vertical	42.8	-3.1	39.7	74.0	34.3	Complied
4.842	Vertical	50.5	-1.8	48.7	74.0	25.3	Complied
5.330	Vertical	44.0	3.0	47.0	74.0	27.0	Complied

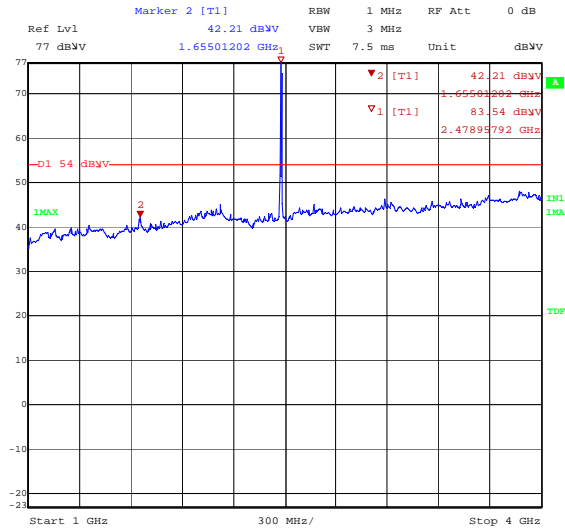
**Results: Highest Average Level DH5 Hopping Mode**

Frequency (GHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
1.639	Vertical	33.8	-3.1	30.7	54.0	23.3	Complied
4.842	Vertical	45.0	-1.8	43.2	54.0	10.8	Complied
5.392	Vertical	34.4	3.0	37.4	54.0	16.6	Complied

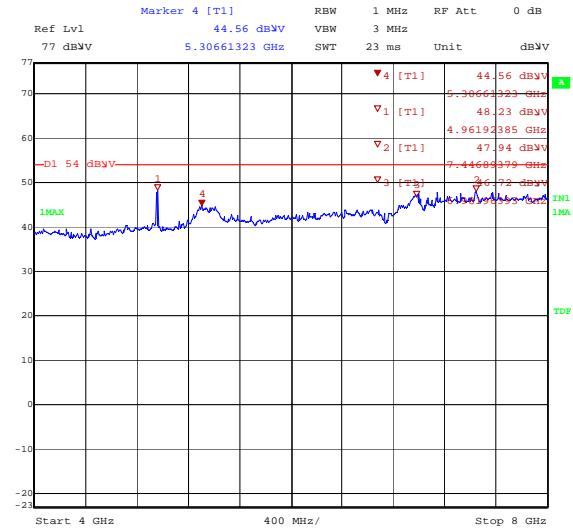
**Note(s):**

1. All pre-scans were performed with a peak detector against average limits apart from measurements made in the range of 12.75 to 18 GHz where pre-scans were performed with peak and average detectors and the applicable limit applied. This was due to the noise floor exceeding the average limit when using a peak detector.
2. The emission shown at approximately 2.479 GHz on the 1 to 4 GHz plot is the carrier.
3. The emissions shown at approximately 5.981 GHz and 7.446 GHz on the 4 to 8 GHz plot were investigated but found to be part of the noise floor, so no final measurement was recorded.

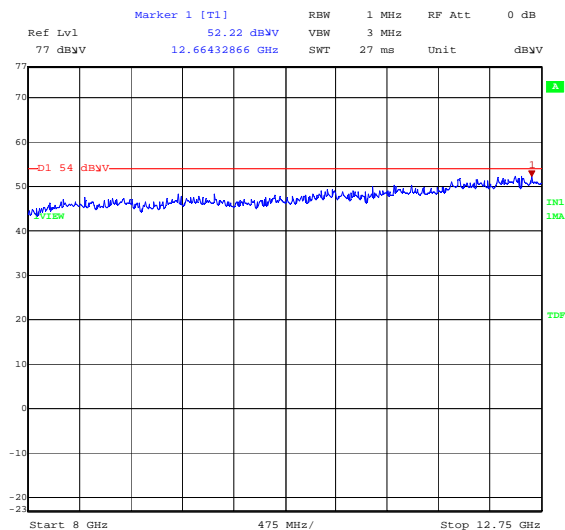
### Transmitter Radiated Emissions (continued)



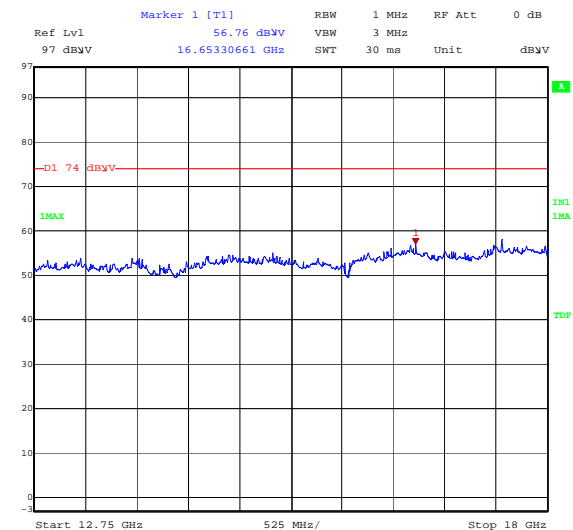
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Date: 19.NOV.2009 16:22:53



Title: RADIATED SPURIOUS EMISSIONS TX MODE TOP CHANNEL  
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Date: 19.NOV.2009 13:46:35



Title: RADIATED SPURIOUS EMISSIONS TX MODE TOP CHANNEL  
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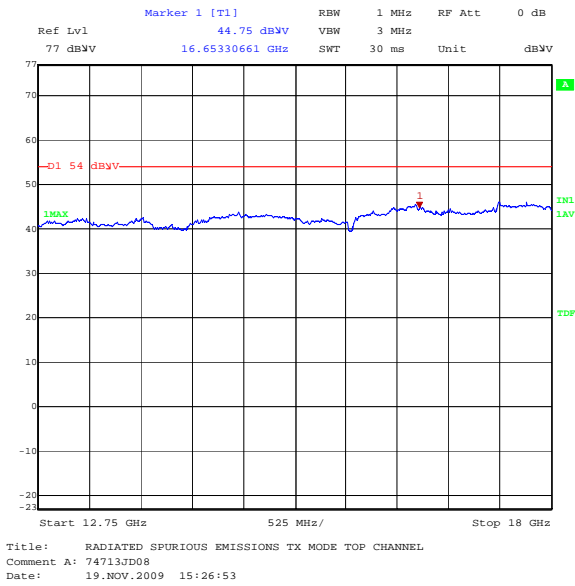


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Comment A: 74713JD08  
Date: 19.NOV.2009 15:25:51

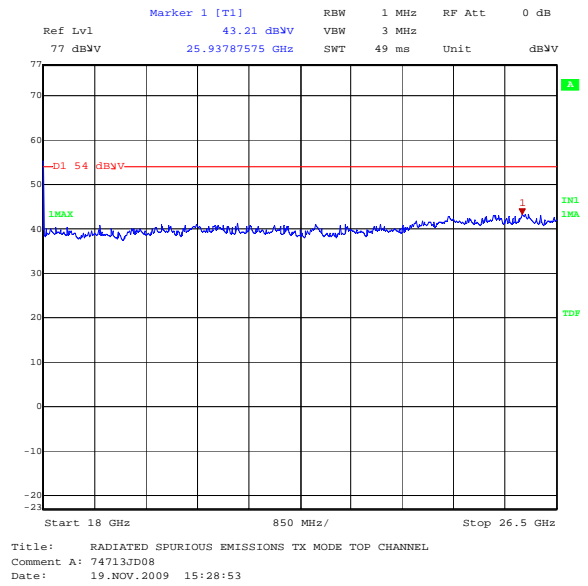
### Peak Measurement

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

**Transmitter Radiated Emissions (continued)**



**Avg Measurement**



*Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.*

**5.1.6. Transmitter Band Edge Radiated Emissions****Test Summary:**

<b>FCC Part:</b>	15.247(d) & 15.209(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)

**Environmental Conditions:**

<b>Temperature (°C):</b>	28
<b>Relative Humidity (%):</b>	67

**Results: Peak Power Level Hopping Mode DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	66.2	-0.2	66.0	*83.3	17.3	Complied
2.4835	Vertical	66.0	-0.3	65.7	74.0	8.3	Complied

**Results: Average Power Level Hopping Mode DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	41.8	-0.3	41.5	54.0	12.5	Complied

**Results: Peak Power Level Hopping Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	52.0	-0.2	51.8	*78.7	26.9	Complied
2.4835	Vertical	65.9	-0.3	65.6	74.0	8.4	Complied

**Results: Average Power Level Hopping Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	41.6	-0.3	41.3	54.0	12.7	Complied

**Results: Peak Power Level Hopping Mode 3DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	52.9	-0.2	52.7	*79.2	26.5	Complied
2.4835	Vertical	65.1	-0.3	64.8	74.0	9.2	Complied



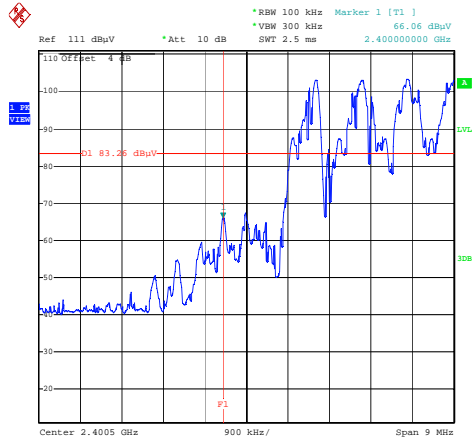
**Results: Average Power Level Hopping Mode 3DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	40.9	-0.3	40.6	54.0	13.4	Complied

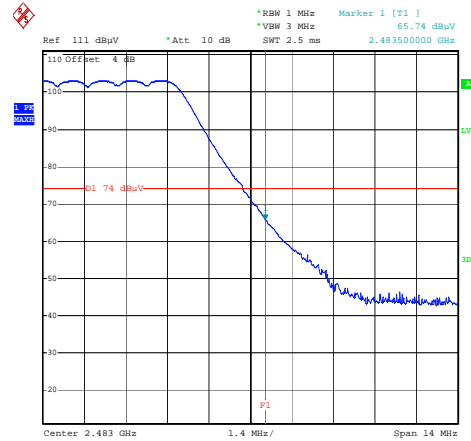
**Note(s):**

1. \* -20 dBc limit

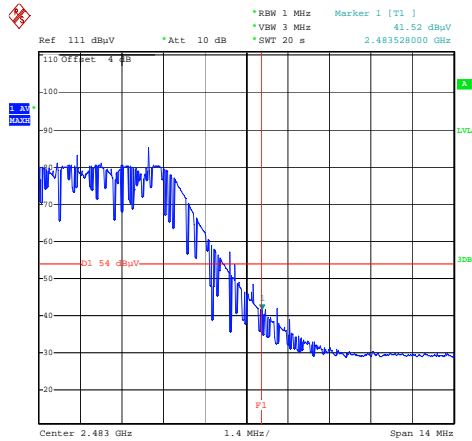
### Transmitter Band Edge Radiated Emissions: DH5 (continued)



Date: 20.NOV.2009 11:01:48

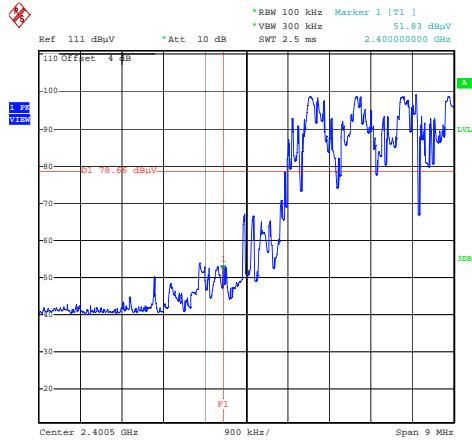


Date: 20.NOV.2009 10:06:06

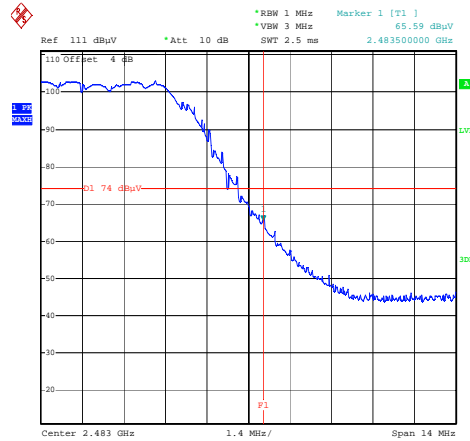


Date: 20.NOV.2009 10:13:24

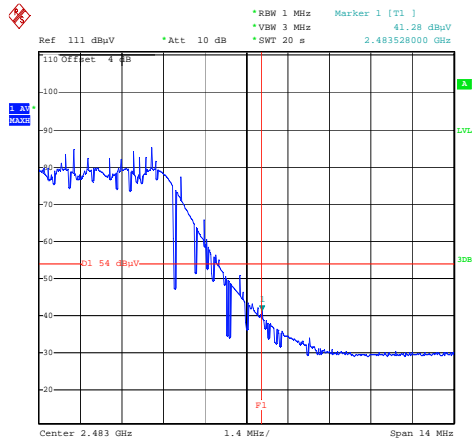
### Transmitter Band Edge Radiated Emissions: 2H5 (continued)



Date: 20.NOV.2009 11:06:58

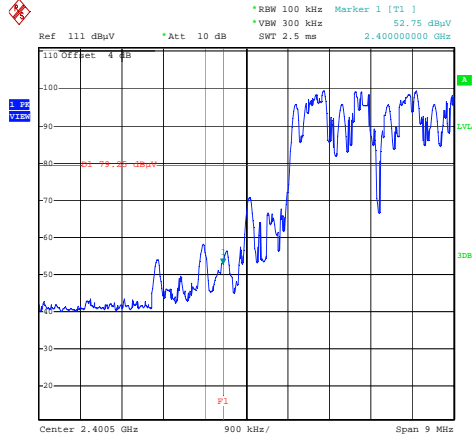


Date: 20.NOV.2009 10:05:01

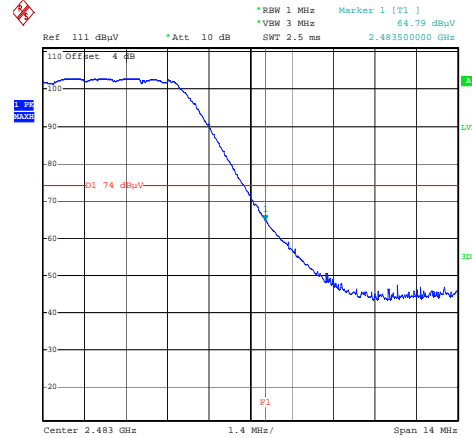


Date: 20.NOV.2009 10:24:08

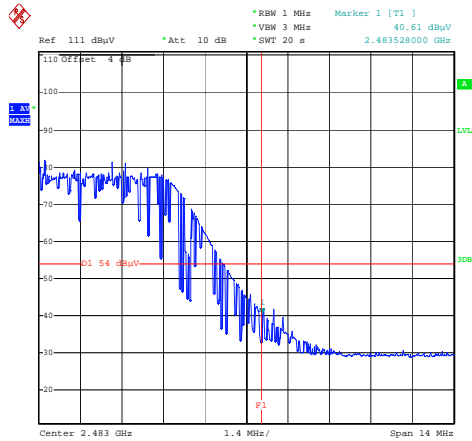
### Transmitter Band Edge Radiated Emissions: 3DH5 (continued)



Date: 20.NOV.2009 11:11:03



Date: 20.NOV.2009 10:03:05



Date: 20.NOV.2009 10:30:51

**Transmitter Band Edge Radiated Emissions (continued)****Results: Peak Power Level Static Mode DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	66.4	-0.2	66.2	*83.3	17.1	Complied
2.4835	Vertical	66.6	-0.3	66.3	74.0	7.7	Complied

**Results: Average Power Level Static Mode DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	51.7	-0.3	51.4	54.0	2.6	Complied

**Results: Peak Power Level Static Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	56.6	-0.2	56.4	*79.4	23.0	Complied
2.4835	Vertical	67.2	-0.3	66.9	74.0	7.1	Complied

**Results: Average Power Level Static Mode 2DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	50.3	-0.3	50.0	54.0	4.0	Complied

**Results: Peak Power Level Static Mode 3DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4000	Vertical	57.1	-0.2	56.9	*79.4	22.5	Complied
2.4835	Vertical	66.2	-0.3	65.9	74.0	8.1	Complied

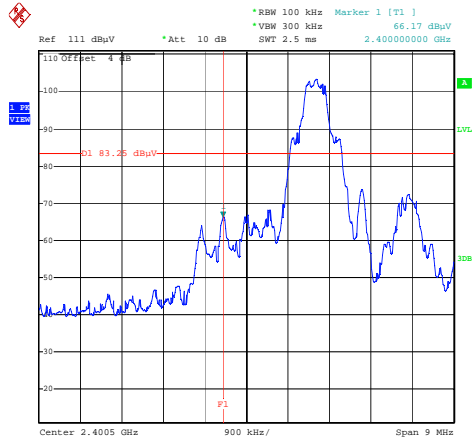
**Results: Average Power Level Static Mode 3DH5**

Frequency (MHz)	Antenna Polarity	Detector Level (dB $\mu$ V)	Transducer Factor (dB)	Actual Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
2.4835	Vertical	51.7	-0.3	51.4	54	2.6	Complied

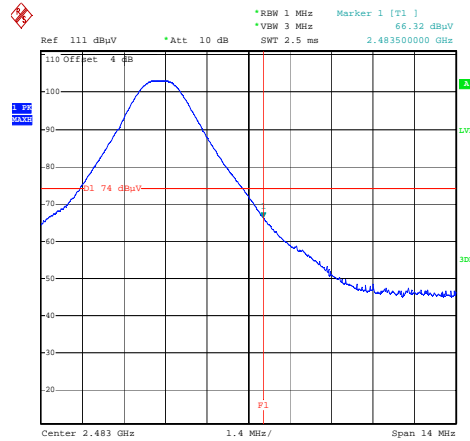
**Note(s):**

- \* -20 dBc limit

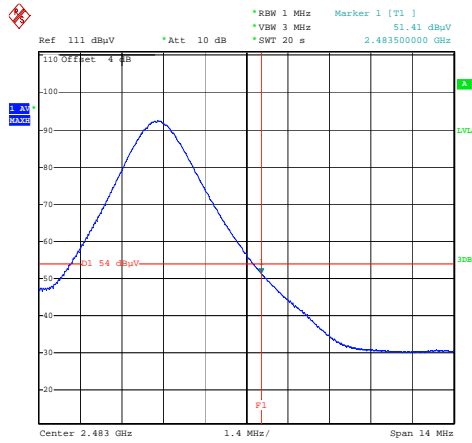
**Transmitter Band Edge Radiated Emissions: DH5 (continued)**



Date: 20.NOV.2009 10:57:13

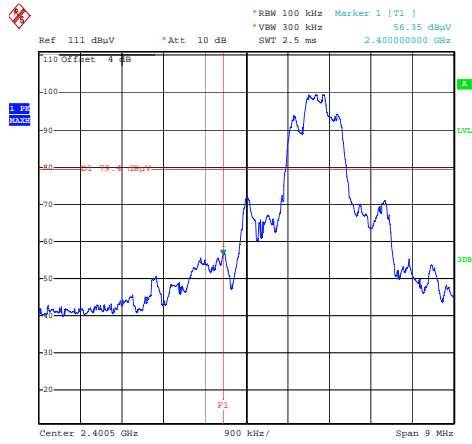


Date: 20.NOV.2009 09:56:37

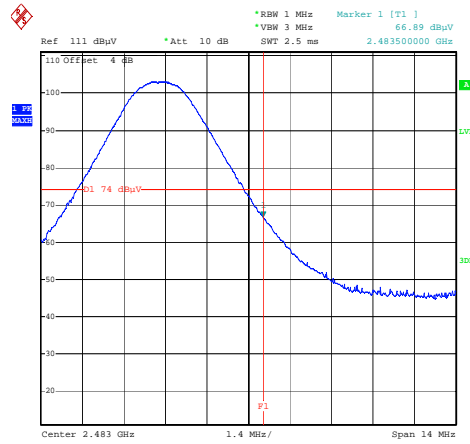


Date: 20.NOV.2009 10:41:51

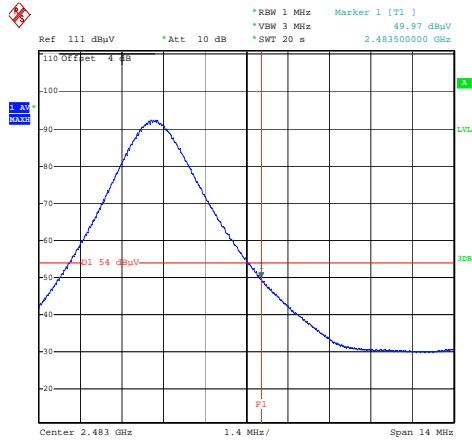
**Transmitter Band Edge Radiated Emissions: 2DH5 (continued)**



Date: 20.NOV.2009 10:53:25

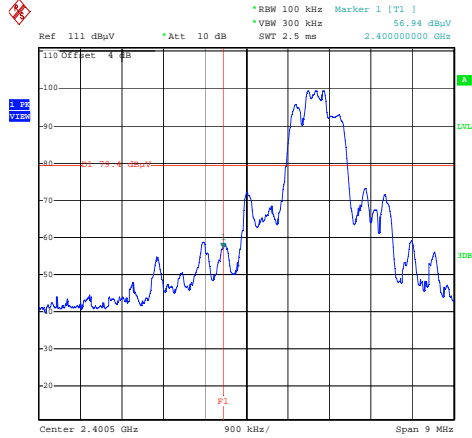


Date: 20.NOV.2009 09:58:29

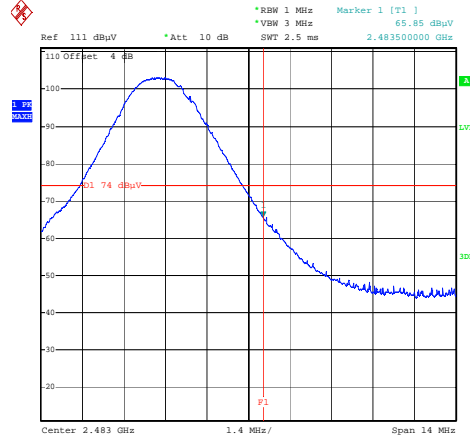


Date: 20.NOV.2009 10:43:00

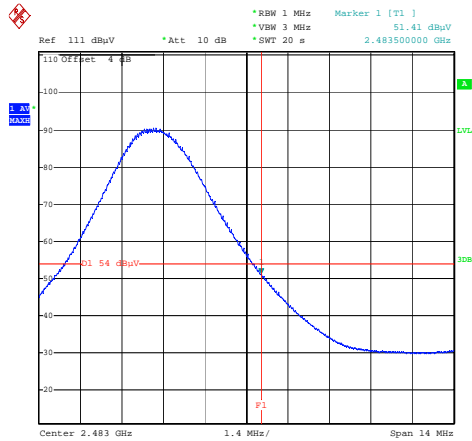
### Transmitter Band Edge Radiated Emissions: 3DH5 (continued)



Date: 20.NOV.2009 10:50:44



Date: 20.NOV.2009 09:59:25



Date: 20.NOV.2009 10:44:09



## **6. Measurement Uncertainty**

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
Conducted Spurious Emissions	30 MHz to 26 GHz	95%	±2.62 dB
Transmitter Maximum Peak Output Power	Not Applicable	95%	±2.62 dB
Radiated Spurious Emissions	30 MHz to 40 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

## Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1532	6 dB Splitter	Atlantec	A8204-2	23445	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2009	12
A288	Antenna	Chase	CBL6111A	1589	13 Mar 2009	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Sep 2009	12
M295	Spectrum Analyser	Hewlett Packard	8564E	3846A01561	23 Jan 2009	12
M1075	Power Meter	Agilent	E4416A	GB41290711	26 Aug 2009	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	22 Apr 2009	12
M1448	Spectrum Analyser	Rohde & Schwarz	FSP	100323	19 Jan 2009	12

**NB** In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.